REMARKS

Attorney for Applicants would like to thank the Examiner for the professional courtesy extended during a telephone interview on Wednesday, February 18, 2004.

In the Office Action, claims 1-18, 20-28 and 32-47 were pending. Claims 1-18, 20-28 and 32-47 were rejected. Claims 1, 2, 10, 32, 33 and 37 have been amended and new claim 48 has been added. The new and amended claims do not contain new subject matter and support can be found, among other places, at page 13, line 1; page 16, lines 13-15; and in Table II on page 17 of the originally filed application, as well as in the originally filed claims. Applicants respectfully request that the Examiner enter the claim amendments and the new claim.

I. Claim Rejections

A. Rejection under 35 U.S.C. § 102(e)

In the Office Action at page 2, number 2, claims 1-9, 11, 13-15, 32-34, 36 and 38-47 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,045,896 ("Boire). The Examiner stated that Boire fails to specifically mention a shading coefficient or U value, but considering the substantially identical coated article disclosed by Boire compared to the claimed article, it appears that the coated article of Boire would possess the claimed shading coefficient. Applicants respectfully traverse the rejection.

1. The Present Invention

The present invention as recited in amended claim 1 is a solar control article comprising a substrate having a surface; a coating over the surface to provide a coated article having a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%, the coating comprising: a first antireflective layer over at least a portion of a substrate surface; a first infrared reflective layer over at least a portion of the first antireflective layer; a second antireflective layer deposited over at least a portion of the first infrared reflective layer; a second infrared reflective layer deposited over at least a portion of the second antireflective layer, wherein the second infrared reflective layer has a thickness of about 159 to about 257 angstroms.

The present invention as recited in claim 16 is a solar control coated article, comprising: a transparent substrate having a surface; a coating over the surface to provide a coated article having a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance

less than about 30%, the coating comprising: a first antireflective layer over at least a portion of a substrate surface, wherein the first antireflective layer has a thickness of about 272 to about 332 angstroms; a first infrared reflective layer over at least a portion of the first antireflective layer, wherein the first infrared reflective layer has a thickness of about 86 to about 269 angstroms; a first primer layer deposited over at least a portion of the first infrared reflective layer, wherein the primer layer has a thickness of about 15 to about 30 angstroms; a second antireflective layer deposited over at least a portion of the first primer layer, wherein the second antireflective layer has a thickness of about 198 to about 836 angstroms; a second infrared reflective layer deposited over at least a portion of the second antireflective layer, wherein the second infrared reflective layer has a thickness of about 159 to about 257 angstroms; a second primer film deposited over at least a portion of the second infrared reflective layer, wherein the primer layer has a thickness of about 15 to about 30 angstroms; and a third antireflective layer deposited over at least a portion of the second primer layer, wherein the third antireflective layer has a thickness of about 60 to about 273 angstroms.

The present invention as recited in amended claim 32 is a method of making a solar control article, comprising the steps of: providing a substrate having a surface; depositing a coating over at least a portion of the surface of the substrate to provide a coated article having a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%, the depositing step comprising the steps of depositing a first infrared reflective layer over at least a portion of the first antireflective layer; depositing a second antireflective layer deposited over at least a portion of the first infrared reflective layer; and depositing a second infrared reflective layer deposited over at least a portion of the second antireflective layer, wherein the second infrared reflective layer has a thickness of about 159 to about 257 angstroms.

2. The Boire Reference

Boire discloses a glazing assembly made of at least one transparent substrate having a stack thereon that includes n functional layers and n+1 coatings, wherein the functional layers can reflect infrared and/or solar radiation.

3. Traversal of the Rejection

To anticipate a claim, a single source must contain all of the elements of the claim. See Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1379, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986). The present invention as recited in claim 1

comprises a solar control article comprising a second infrared reflective layer having a thickness of about 159 to about 257 angstroms and having a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%. In the Office Action, the Examiner stated that Boire fails to specifically mention a shading coefficient or U value, but considering the substantially identical coated article disclosed by Boire compared to the claimed article, it appears that the coated article of Boire would possess the claimed shading coefficient. Essentially, the Examiner is saying that the shading coefficient required by claim 1 is inherent in Boire.

Boire differs from the present invention as claimed in amended claim 1 in at least one major respect. As recited in claim 1, the solar control article includes a second infrared reflective layer that has a thickness ranging from 159 to 257 angstroms. It is the thickness of the second metal film that enables the article to exhibit the claimed properties: a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%.

In contrast to the present invention, Boire discloses a second reflective functional layer having thickness of 9 nm (see Table 1) which is equal to 90 angstroms. Consequently, Boire does not disclose the solar control article as recited in claim 1; specifically, Boire does not disclose a solar control article includes a second infrared reflective layer that has a thickness ranging from 159 to 257 angstroms and has a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%.

Further, as discussed during the telephone interview, Boire and other assemblies that have similar visible light transmittance and reflectance values do not inherently posses the shading coefficient required in claim 1. An analysis of a commercial product, Solarban® 60 coating which is available from PPG Industries, Inc. in Pittsburgh, PA, proves this point. Because Solarban® 60 coating is a commercial product, its product specifications are readily available (if necessary, the publicly available specifications for Solarban® 60 coating can be sent to the Examiner). Like the present invention, Solarban® 60 coating is comprised of antireflective layers and infrared reflective films. A substrate coated with Solarban® 60 coating exhibits a visible light transmittance approximately between 50% and 70% (73%) which is similar to the present invention. However, Solarban 60 has a shading

coefficient of approximately 0.39. The shading coefficient of Solarban 60 is not l ss than 0.33 as required by claim 1.

The analysis of Solarban® 60 illustrates that it is not inherent for a coating comprised of antireflective layers and infrared reflective films and having certain overlapping properties like visible light transmittance and reflectance to have a shading coefficient less than 0.33. A shading coefficient of a specific value in combination with other properties is obtained by carefully manipulating the composition and the thicknesses of the various layers.

Boire does not teach or disclose a solar control article that includes a second infrared reflective layer ranging from 159 to 257 angstroms and has a shading coefficient that is less than 0.33 as required in claim 1. Because Boire does not disclose each and every element in claim 1, it cannot anticipate the solar control article as recited in claim 1. As a result, Applicants respectfully request the withdrawal of the rejection of claim 1 under 35 U.S.C. § 102(e) as being anticipated by Boire.

Claims 6-8, 10-12, 20, and 21 directly or indirectly depend on claim 1 and recite the present invention in varying scope. There is nothing in Boire that teaches or discloses the invention as recited in claim 1, as further limited by claims 6-8, 10-12, 20, and 21. As a result, claims 6-8, 10-12, 20, and 21 are not anticipated by the reference of record. Applicants respectfully request the withdrawal of the rejection of claims 6-8, 10-12, 20, and 21 under 35 U.S.C. § 102(b).

B. Rejections under 35 U.S.C. § 103

1. Rejection of Claims 10, 12, 16-18, 20-25, 27, 28, 35, 37, 43, 46 and 47 over Boire under 35 U.S.C. §103

In the Office Action at page 4, number 4, claims 10, 12, 16-18, 20-25, 27-28, 35, 37, 43, 46 and 47 were rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to the claims above. The Examiner stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the layer thicknesses because it is understood by one of ordinary skill in the art that the layer thicknesses determine properties such as transmittance, emissivity, and color and because it has been held that discovering optimum value of a result effective variable involves only routine skill in the art. Applicants respectfully traverse the rejection.

a. Traversal of the Rejection

For a proper rejection under 35 U.S.C. § 103, the PTO must satisfy three requirements. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or to combine references. See In re Fine, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. See Amgen, Inc., 927 F.2d 1200, 1209, 18 U.S.P.Q.2d 1016, 1023 (Fed Cir. 1991). Lastly, the prior art reference or combination of references must teach or suggest all the limitations of the claims. See In re Wilson, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970).

The present invention as recited in claim 1 is a solar control article comprising a second infrared reflective layer having a thickness of about 159 to about 257 angstroms and having a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%. As discussed above, the shading coefficient achieved by the present invention is a result of manipulations of both the composition of the various coating layers and the thicknesses of the various coating layers. The inclusion in the solar control article of a second infrared reflective having a thickness ranging from 159 to 257 angstroms enables the article to exhibit the desired properties.

Also, as discussed above, shading coefficient is not an inherent feature of a coated substrate having a similar visible light transmittance and reflectance. Solarban 60 has a similar composition and other similar performance properties to the present invention but does not exhibit the required shading coefficient of less than 0.33. Further, it is not obvious how to manipulate various layers of a coating to achieve a combination of properties. Because the properties of a multilayer coating composition are a result of interactions between the various layers of coating, it is not possible to change one variable like the thickness of a given layer, for example, in the coating to affect a single property. Changing one variable affects all of the properties of the coating. Manipulating various coating layers to achieve a combination of properties is the essence of invention.

Claims 10, 12, 43, 46 and 47 directly or indirectly depend on claim 1 and recite the present invention in varying scope. Applicants have discussed above

how claim 1 is patentably distinguishable over the references of record and claims 10, 12, 43, 46 and 47 are similarly distinguishable. Specifically, the references of record do not disclose or teach a solar control article comprising a second infrared reflective layer having a thickness of about 159 to about 257 angstroms and a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%. Applicants respectfully request the withdrawal of the rejection of claims 10, 12, 43, 46 and 47 under 35 U.S.C. § 103(a).

The present invention as recited in claim 16 is a solar control coated article that includes a second infrared reflective layer having a thickness ranging from 159 to 257 angstroms and has a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%.

For the reasons discussed above in connection with claim 1, there is nothing in Boire that teaches or suggests the solar control coated article of claim 16; specifically there is no teaching of a solar control article that includes a second infrared reflective layer having a thickness ranging from 159 to 257 angstroms and has a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%. As a result, Applicants respectfully request the withdrawal of the rejection of claim 16.

Claims 17, 18, 20-25, 27 and 28 directly or indirectly depend on claim 16 and recite the present invention in varying scope. Applicants have discussed above how claim 16 is patentably distinguishable over the references of record and claims 17, 18, 20-25, 27 and 28 are similarly distinguishable. As a result, Applicants respectfully request the withdrawal of the rejection of claims 17, 18, 20-25, 27 and 28.

The present invention as recited in claim 32 is a method of making a solar control article comprising the step of depositing a second infrared reflective layer deposited having a thickness of about 159 to about 257 angstroms over the second antireflective layer. For the reasons discussed above in connection with claim 1, there is nothing in Boire that teaches or suggests the method of making a solar control coated article recited in claim 32. Specifically there is no teaching of depositing second infrared reflective layer having a thickness ranging from 159 to 257 angstroms to provide a coated substrate having a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a

reflectance less than about 30%. As a result, Applicants respectfully request th withdrawal of the rejection of claim 32.

Claims 35 and 37 directly or indirectly depend on claim 32 and recite the present invention in varying scope. Applicants have discussed above how claim 32 is patentably distinguishable over the references of record and claims 35 and 37 are similarly distinguishable. As a result, Applicants respectfully request the withdrawal of the rejection of claims 35 and 37.

2. Rejection of Claims 26, 46 and 47 over Boire and further in view of U.S. Patent No. 5,821,001 ("Arbab").

At page 5, number 5 of the Office Action, claims 26, 46 and 47 were rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 10, 12, 16-18, 20-25, 27-28, 35, 37, 43, 46 and 47 above, and further in view of U.S. Patent No. 5,821,001 ("Arbab"). The Examiner stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to make one or more of the antireflective multilayers from any suitable material such as zinc stannate/zinc oxide antireflective multilayer, as disclosed by Arbab, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. Further, it is the Examiner's position that the article of the prior art is identical to or only slightly different than the claimed article prepared by the method of claim 46. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself.

a. The Arbab reference

Arbab discloses a multilayer high transmittance, low emissivity coating that features a special antireflective base film of at least two parts; a metallic-contacting film-part and a support film-part.

b. Traversal of the Rejection

The rule for a § 103 rejection is shown above. Claims 26, 46 and 47 directly or indirectly depend on claim 16 and recite the present invention in varying scope. Applicants have discussed above how claim 16 is patentably distinguishable over Boire.

There is nothing in Boire, considered alone and in view of Arbab, that teaches or suggests the invention as recited in claim 16, further limited by claims 26, 46 and 47. Specifically, there is no teaching of a solar control coated article that includes a second infrared reflective layer having a thickness ranging from 159 to

257 angstroms and has a visible light transmittance in the range of about 50 to about 70%, a shading co fficient less than about 0.33, a reflectance less than about 30%, and further including the features recited in claims 26, 46 and 47. As a result, claims 26, 46 and 47 are patentable distinguishable over the references of record and Applicants respectfully request the withdrawal of the rejection of claims 26, 46 and 47.

3. Rejection of Claims 40 and 41 over Boire and further in view of U.S. Patent No. 5,776,603 ("Zagdoun").

At page 7, number 6 of the Office Action, claims 40 and 41 were rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 1-9, 11, 13-15, 32-34, 36 and 38-45 above, and further in view of U.S. Patent No. 5,776,603 ("Zagdoun"). The Examiner stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the glass article of Boire in a dual glass plate arrangement with a gas-filled space, as disclosed by Zagdoun, because the article would possess reinforced thermal insulation suitable for many applications.

a. The Zagdoun Reference

Zagdoun discloses a coated substrate wherein the coating has at least one film based on an oxide of silicon, aluminum, and a third element.

b. Traversal of the Rejection

The rule for a proper § 103 rejection is shown above. Claims 40 and 41 directly or indirectly depend on claim 1 and recite the present invention in varying scope. Applicants have discussed above how claim 1 is patentably distinguishable over Boire.

Claims 40 and 41 depend on claim 1 and recite the invention in varying scope. There is nothing in Boire, considered alone and in view of Zagdoun that teaches or suggests the invention of claims 40 and 41. Specifically, there is no teaching of a solar control article that includes a second infrared reflective layer having a thickness ranging from 159 to 257 angstroms and has a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 a reflectance less than about 30%, as well as the features recited in claims 40 and 41. Applicants respectfully request the withdrawal of the rejection of claims 40 and 41.

4. Rejection of Claim 42 over Boire and further in view of Zagdoun and U.S. Patent No. 4,863,540 ("Catalano").

At page 7, number 7 of the Office Action, claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 1-9, 11, 13-15, 32-34, 36 and 38-45 above, and further in view of Zagdoun and Catalano. The Examiner stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the glass article of Boire in a dual glass plate arrangement with a gas-filled space, as disclosed by Zagdoun, because the article would possess reinforced thermal insulation suitable for many applications. The Examiner further stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to place a polymeric film in the gap of the article disclosed by Boire in view of Zagdoun, because the polymeric film may provide the article with a specific color.

a. The Catalano Reference

Catalano discloses a polyurethane filmed glass material for use as a monolithic insulated glass or laminated glass.

b. Traversal of the Rejection

The rule for a proper § 103 rejection is shown above. Claim 42 indirectly depends on claim 1. Applicants have discussed above how claim 1 is patentably distinguishable over Boire and further in view of Zagdoun.

Claim 42 depends on claim 1 and recites the invention in varying scope. There is nothing in Boire, considered alone and further in view of Zagdoun and Catalano, that teaches or suggests the invention of claim 42. Specifically, there is no teaching of a solar control article that includes a second infrared reflective layer having a thickness ranging from 159 to 257 angstroms and has a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%, as well as the feature of claim 42. As a result, Applicants respectfully request the withdrawal of the rejection of claim 42 under 35 U.S.C. § 103(a).

5. Rejection of Claim 44 over Boire and further in view of U.S. Patent No. 4,489,134 ("Yudenfriend")

At page 8, number 8 of the Office Action, claim 44 was rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 1-9, 11, 13-15, 32-34, 36 and 38-45, and further in view of Yudenfriend. The Examiner stated that it would have been obvious to one having ordinary skill in the art at the time the

invention was made to apply a removable protective film to the coated article of Arbab, because the removable film would prevent the formation of blemishes and scratches during manufacturing or transportation of the article.

a. The Yudenfriend Reference

Yudenfriend discloses a method and apparatus for apply a control film to the surface of a window panel.

b. Traversal of the Rejection

The rule for a proper § 103 rejection is shown above. Claim 44 directly depends on claim 1 and recites the present invention in varying scope. Applicants have discussed above how claim 1 is patentably distinguishable over Boire.

Claim 44 depends on claim 1 and recites the invention in varying scope. There is nothing in Boire, considered alone and further in view of Yudenfriend, that teaches or suggests the invention of claim 44. Specifically there is no teaching of a solar control article that includes a second infrared reflective layer having a thickness ranging from 159 to 257 angstroms and has a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30% as well as the feature of claim 44. As a result, Applicants respectfully request the withdrawal of the rejection of claim 44.

6. Rejection of Claims 1-18, 20-28, 32-39 and 43-46 over Arbab

At page 8, number 9 of the Office Action, claims 1-18, 20-28, 32-39 and 43-46 were rejected under 35 U.S.C. 103(a) as being unpatentable over Arbab. The Examiner further alleges that Arbab fails to mention the specific shading coefficient or reflectance of the example. The Examiner stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the thicknesses, because it is understood by one of ordinary skill in the art that the layer thicknesses determine properties such as transmittance, emissivity, and color and because it has been held that discovering optimum value of a result effective variable involves only routine skill in the art.

a. Traversal of the Rejection

The rule for a proper § 103 rejection is shown above. The present invention as recited in claim 1 comprises a solar control article comprising a second infrared reflective layer having a thickness of about 159 to about 257 angstroms and having a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%.

In contrast to the present invention, Arbab discloses a second reflectiv film of silver having thickness of 130 Angstroms (see Example 3). Further, in the Office Action, the Examiner stated that Arbab fails to specifically mention a shading coefficient or reflectance of the example.

As discussed above, shading coefficient is not an inherent feature of a coated substrate that has similar properties in regard to visible light transmittance and reflectance. There is nothing in Arbab that teaches or suggests, either implicitly or explicitly, the solar control article as recited in claim 1; specifically, there is no teaching of a solar control article that includes a second infrared reflective layer having a thickness of about 159 to about 257 angstroms and has a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%. Based on the above, claim 1 is patentably distinguishable over the references of record. As a result, Applicants respectfully request the withdrawal of the rejection of claim 1.

Claims 2-15, 39 and 43-46 directly or indirectly depend on claim 1 and recite the present invention in varying scope. Applicants have discussed above how claim 1 is patentably distinguishable over the reference of record and claims 2-15, 39 and 43-46 are similarly distinguishable. Applicants respectfully request the withdrawal of the rejection of claims 2-15, 39 and 43-46.

The present invention as recited in claim 16 is a solar control coated article that includes a second infrared reflective layer having a thickness ranging from 159 Å to 257 Å and has a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%.

For the reasons discussed above in connection with claim 1, there is nothing in Arbab that teaches or suggests the solar control coated article of claim 16. Arbab discloses a second reflective film of silver having a thickness of 130 Angstroms. As a result, Applicants respectfully request the withdrawal of the rejection of claim 16.

Claims 17, 18 and 20-28 directly or indirectly depend on claim 16 and recite the present invention in varying scope. Applicants have discussed above how claim 16 is patentably distinguishable over the references of record and claims 17, 18 and 20-28 are similarly distinguishable. Applicants respectfully request the withdrawal of the rejection of claims 17, 18 and 20-28 under 35 U.S.C. § 103(a).

The present invention as recited in claim 32 is a method of making a solar control article, comprising depositing a coating over the surface of the substrate to provide a coated article having a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30%, the depositing step comprising the step of depositing a second infrared reflective layer deposited having a thickness of about 159 to about 257 angstroms over the second antireflective layer.

For the reasons discussed above in connection with claim 1, there is nothing in Arbab that teaches or suggests the method of making a solar control coated article recited in claim 32. Arbab discloses a second reflective film of silver having a thickness of 130 Angstroms. As a result, Applicants respectfully request the withdrawal of the rejection of claim 32.

Claims 33-38 directly or indirectly depend on claim 32 and recite the present invention in varying scope. Applicants have discussed above how claim 32 is patentably distinguishable over the references of record and claims 33-28 are similarly distinguishable. Applicants respectfully request the withdrawal of the rejection of claims 33-38.

7. Rejection of Claims 40 and 41 over Arbab and further in view of Zagdoun

At page 11, number 10 in the Office Action, claims 40 and 41 were rejected under 35 U.S.C. 103(a) as being unpatentable over Arbab as applied to claims 1-18, 20-28, 32-39 and 43-46 above and further in view of Zagdoun. The Examiner stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the glass article of Arbab in a dual glass plate arrangement with a gas-filled space, because this article possesses reinforced thermal insulation suitable for many applications. Further, the Examiner stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the thicknesses, because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

a. Traversal of the Rejection

The rule for a proper § 103 rejection is shown above. Claims 40 and 41 directly or indirectly depend on claim 1 and recite the present invention in varying scope. Applicants have discussed above how claim 1 is patentably distinguishable over Arbab. As the Examiner stated in the Office Action, Zagdoun discloses the

mounting of a coated glass article between two substrates with a gas-filled space defined there between for reinforced thermal insulation.

Claims 40 and 41 depend on claim 1 and recite the invention in various embodiments. There is nothing in Arbab, considered alone and in view of Zagdoun, that teaches or suggests the invention of claims 40 and 41. Specifically there is no teaching of a solar control article that includes a second infrared reflective layer having a thickness ranging from 159 to 257 angstroms and has a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30% as well as the features in claims 40 and 41. As a result, Applicants respectfully request the withdrawal of the rejection of claims 40 and 41.

8. Rejection of Claims 42 and 47 over Arbab and further in view of Zagdoun and Catalano

At page 12, number 11 of the Office Action, claims 42 and 47 were rejected under 35 U.S.C. 103(a) as being unpatentable over Arbab as applied to claims 1-18, 20-28, 32-39 and 43-46 above, and further in view of Zagdoun and Catalano. The Examiner stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the glass article of Arbab in a dual glass plate arrangement with a gas-filled space, because this article possesses reinforced thermal insulation suitable for many applications. The Examiner also stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to place a polymeric film in the gap of the article disclosed by Arbab in view of Zagdoun, because the polymeric film may provide the article with a specific color.

a. Traversal of the Rejection

The rule for a proper § 103 rejection is shown above. Claims 42 and 47 directly or indirectly depend on claim 1 and recite the present invention in varying scope. Applicants have discussed above how claim 1 is patentably distinguishable over Boire and further in view of Zagdoun. As the Examiner stated in the Office Action, Catalano discloses that a polymeric film may be deposited on a glass substrate, in a glass sandwich structure to produce a colored or tinted glass article.

Claims 42 and 47 are dependent on claim 1 and recite the invention in various embodiments. There is nothing in Arbab alone and further in view of Zagdoun and Catalano that teaches or suggests the invention as recited in claims 42 and 47; specifically there is no teaching of a solar control article that includes a

second infrared reflective layer having a thickness ranging from 159 to 257 angstroms and has a visible light transmittance in th range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30% as well as the features of claims 42 and 47. As a result, Applicants respectfully request the withdrawal of the rejection of claims 42 and 47 under 35 U.S.C. § 103(a).

9. Rejection of Claim 44 over Arbab and further in view Yudenfriend

At page 12, line 12 of the Office Action, claim 44 was rejected under 35 U.S.C. 103(a) as being unpatentable over Arbab as applied to claims 1-18, 20-28, 32-39 and 43-46 above, and further in view of Yudenfriend. The Examiner stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a removable protective film to the coated article of Arbab, because the removable film would prevent the formation of blemishes and scratches during manufacturing or transportation of the article.

a. Traversal of the Rejection

The rule for a proper § 103 rejection is shown above. Claim 44 directly depends on claim 1 and recites the present invention in varying scope. There is nothing in Arbab, considered alone and further in view of Yudenfriend, that teaches or suggests the invention of claim 44. Specifically there is no teaching of a solar control article that includes a second infrared reflective layer having a thickness ranging from 159 to 257 angstroms and has a visible light transmittance in the range of about 50 to about 70%, a shading coefficient less than about 0.33 and a reflectance less than about 30% as well as the feature of claim 44. As a result, Applicants respectfully request the withdrawal of the rejection of claim 44.

II. New Claim 48

Applicants respectfully request the admission of new claim 48. For reasons similar to those discussed above, claim 48 is patentable over the references cited in the Office Action mailed on December 19, 2003. Claim 48 restricts the coating composition of the invention to a certain LCS value. The LCS is defined as the percent of visible light transmittance expressed as a decimal divided by the shading coefficient. Because the LCS is not taught or disclosed in the cited references and further like its numerator, the shading coefficient, it is not inherent since disclosure of similar coating materials do not inherently provide the same

coating performance. Claim 48 is patentable distinguishable over the references of record and Applicants respectfully request the allowance of claim 48.

III. Conclusion

In light of the amendments and remarks presented in this correspondence, Applicants respectfully respect the withdrawal of the following rejections: rejection of claims 1-9, 11, 13-15, 32-34, 36 and 38-47 under 35 U.S.C. § 102(e) as being anticipated Boire; rejection of claims 10, 12, 16-18, 20-25, 27-28, 35, 37, 43, 46 and 47 under 35 U.S.C. § 103(a) as being unpatentable over Boire; rejection of claims 26, 46 and 47 under 35 U.S.C. § 103(a) as being unpatentable over Boire and further in view of Arbab; rejection of claims 40 and 41 under 35 U.S.C. § 103(a) as being unpatentable over Boire and further in view of Zagdoun; rejection of claim 42 under 35 U.S.C. § 103(a) as being unpatentable over Boire and further in view of Zagdoun and Catalano; rejection of claim 44 under 35 U.S.C. § 103(a) as being unpatentable over Boire and further in view of Yudenfriend; rejection of claims 1-18, 20-28, 32-39 and 43-46 under 35 U.S.C. § 103(a) as being unpatentable over Arbab; rejection of claims 40 and 41 under 35 U.S.C. § 103(a) as being unpatentable over Arbab and further in view of Zagdoun; rejection of claims 42 and 47 under 35 U.S.C. § 103(a) as being unpatentable over Arbab and further in view of Zagdoun and Catalano; rejection of claim 44 under 35 U.S.C. §103(a) as being unpatentable over Arbab and further in view of Yudenfriend; and allowance of currently pending claims 1-18, 20-28 and 32-47 and new claim 48.

If there are any additional issues, the Examiner is requested to contact Applicants' attorney at the telephone number provided below.

Respectfully submitted,

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